

## UNINTERRUPTIBLE POWER SOURCE



## SPS ADVANCE Series



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### 7.1. Specification

# 1. Introduction

## 1.1. Gratefulness letter

We would like to thank you in advance for the trust you have placed in us by purchasing this product. Read this instruction manual carefully before starting up the equipment and keep it for any possible future consult that can arise.

We remain at your entire disposal for any further information or any query you should wish to make.

Yours sincerely,

**SALICRU**

- ☐ The equipment here described can cause important physical damages due to wrong handling. This is why, the installation, maintenance and/or fixing of the here described equipment must be done by our staff or specifically authorised.
- ☐ According to our policy of constant evolution, we reserve the right to modify the specifications in part or in whole without forewarning.
- ☐ All reproduction or third party concession of this manual is prohibited without the previous written authorization of our firm.

## 1.2. Using this manual

The target of this manual is to give explanations and procedures for the installation and operating of the equipment. This manual has to be read carefully before installing and operating it. Keep this manual for future consults.

This equipment has to be **installed by qualified staff** and, the simple help of this manual, **it can usable by personnel without specific training**.

### 1.2.1. Used conventions and symbols



«Warning» symbol. Carefully read the indicated paragraph and take the stated prevention measures.



«Danger of electrical discharge» symbol. Pay special attention to it, both in the indication on the equipment and in the paragraph referred to this user's manual.



«Main protective earthing terminal» symbol. Connect the earth cable coming from the installation to this terminal.



«Earth bonding terminal» symbol. Connect the earth cable from the loads or battery cabinet to this terminal.



«Notes of information» symbol. Additional topics that complement the basic procedures.



**Preservation of the environment:** The presence of this symbol in the product or in their associated documentation states that, when its useful life is expired, it will not be disposed together with the domestic residuals. In order to avoid possible damages to the environment, separate this product from other residuals and recycle it suitably. The users can contact with their provider or with the pertinent local authorities to be informed on how and where they can take the product to be recycled and/or disposed correctly.

### 1.2.2. For more information and/or help

For more information and/or help of the version of your specific unit, request it to our Service and Technical Support (S.T.S.).

### 1.2.3. Safety and first aid

Together with the equipment and this «User and installation manual», it is provided the information regarding to «Safety instructions» (See document EK266\*08). Before proceeding to the installation or commissioning, check that **both information** are available; otherwise request them. It is obligatory the compliance of the «Safety instructions», being the user the legal responsible regarding to its observance. Once read, keep them for future consults that can arise.

## 2. Quality and standard guarantee

### 2.1. Management declaration

Our target is the client's satisfaction, therefore this Management has decided to establish a Quality and Environmental policy, by means of installation a Quality and Environmental Management System that becomes us capable to comply the requirements demanded by the standard **ISO 9001** and **ISO 14001** and by our Clients and concerned parts too.

Likewise, the enterprise Management is committed with the development and improvement of the Quality and Environmental Management System, through:

- The communication to all the company about the importance of satisfaction both in the client's requirements and in the legal and regulations
- The Quality and Environmental Policy diffusion and the fixation of the Quality and Environment targets.
- To carry out revisions by the Management.
- To provide the needed resources.

### 2.2. Standard

The **SPS ADVANCE** product is designed, manufactured and commercialized in accordance with the standard **EN ISO 9001** of Quality Assurance. The **CE** marking shows the conformity to the EEC Directive (quoted between brackets) by means of the application of the following standards:

- **2006/95/EC** of Safety of Low Voltage
- **2004/108/EC** of Electromagnetic Compatibility (EMC).
- in accordance with the specifications of the harmonized standards. Standards of reference:
- **EN 60950-1**: Equipment Information Technology. Security. Part 1: General requirements.
- **IEC/EN 62040-2**: Uninterruptible power supplies (UPS). Part 2: Requirements for Electromagnetic Compatibility (EMC).
- **IEC/EN 62040-3**: Uninterruptible power supplies (UPS). Part 3: Methods of operation and specification of test requirements.

The declaration of conformity CE of the product is at the disposal of the client previous express request to our head offices.

### 2.3. Environment.

#### Equipment recycling at the end of its useful life:

Our company commits to use the services of authorised societies and according to the regulations, in order to treat the recovered product at the end of its useful life (contact your distributor).

#### Packing:

To recycle the packing, follow the legal regulations in force.

#### Batteries:

The batteries mean a serious danger for health and environment. The disposal of them must be done in accordance with the standards in force.

### 3. Description

This series is a compact and fully pure sinewave line interactive UPS, and it designs for application and environment, such as desktops, servers, workstations, and other networking equipments. This model is available in the output ratings of 750, 1000, 1500, 2000, and 3000VA. This series protects your sensitive electronic equipments against power problems including power sags, spike, brownouts, line noise, and blackouts.

This series designs from two-in-one form factor; it can be placed either in Rack 2U or Tower. The front panel of the UPS includes LED indicators and four push buttons (Power Switch, UPS Test/Silence, Configure, and Enter) that allow to monitor easily, configuration and control, AC line-in, notification of site wiring fault and output load status of the UPS. It also includes four LCD bar graphic (Load/Battery Level Indication); two status indications (On AC, On Battery); five alarm indications (Overload, Over Temperature, Site Wiring Fault, Battery Fault, Self Test Failure). A push button from the front panel allows silencing of the AC fail alarm and the initiation of the UPS self test sequence as well. The UPS case for 750 ~ 2000VA is made of plastic as well as 3000VA is made of metal.

This series is powered from the AC mains and supply AC outputs via receptacles on the rear panel. Communication and control to the unit is available through serial or USB ports located on the rear panel. The serial port will support communications directly with a server. The communications protocol for the serial ports shall conform to true RS232 interface..

- **Features:**

- ☐ Microprocessor control guarantees high reliability.
- ☐ High frequency design.
- ☐ Built-in boost and buck AVR.
- ☐ User replaceable design for 1500VA or above.
- ☐ Selectable output range and line sensitive.
- ☐ Cold startup capability.
- ☐ Optocouplers/RS-232/USB communication port.
- ☐ SNMP allows for web-based remote or monitoring management.
- ☐ Enable to extend runtime with scalable external battery pack for 1500VA or above.
- ☐ Overload, Short-circuit, and overheat protection.
- ☐ Rack/Tower 2 in 1 Design.
- ☐ 19" rack mount available for all models.

## 4. Presentation of system

### 4.1. Front Panel

The total view of the LCD (in front panel):

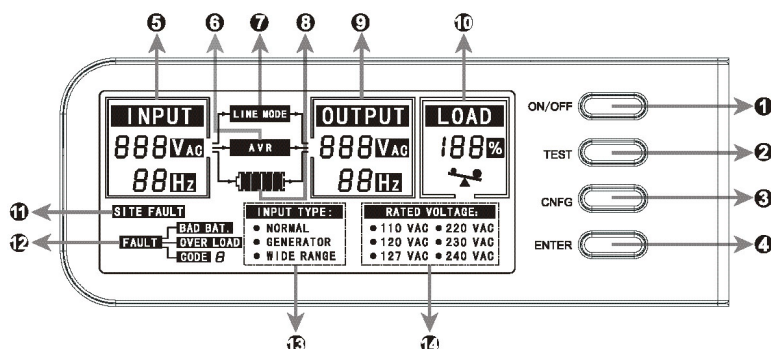


Fig. 1. The total view of the LCD

The primary introduction to above figure:

#### 1. Power Switch ON/OFF.

- ☐ To turn on the UPS, press the “ON/OFF” button more than three seconds.
- ☐ To turn off the UPS, press and hold this button until you hear the UPS beep ceases..

#### 2. UPS Test/ Alarm Silence Switch.

- ☐ When AC utility power is available and battery is full charged, it is possible to perform self-test function by pressing and holding the “TEST” button for five seconds.
- ☐ To disable alarm buzzer, press this button for a second that will turn off the alarm buzzer. Each time a new alarm event is encountered the alarm that will sound and press this button to turn off the alarm.

**Note:** Unable to disable alarm buzzer as below conditions: Low Battery, Overload, Fan Failed, Fan Fault Time Out, Over Temperature.

#### 3. Configure switch: To reconfigure the internal UPS setup options, follow the procedure as below:

- ☐ Step 1: By entering the “CNFG” button more than three seconds, UPS will transfer to “Rated voltage” configure mode.
- ☐ Step 2: Pressing the “CNFG” button more than one second, the UPS allows you to select the “Rated voltage one by one.
- ☐ Step 3: After selecting the mode, press the “ENTER” button more than three seconds, the “Rated voltage” is configured.
- ☐ Step 4: UPS will automatically transfer to “Input type” configure mode.

- ☐ Step 5: Pressing the “CNFG” button more than one second, the UPS will allow you to select the “Input type” one by one.
- ☐ Step 6: After selecting the mode, press the “ENTER” button more than three seconds, the “Input type” is configured..

#### 4. Enter switch: Press the «ENTER» button after you choose the mode.

#### 5. Input parameters (voltage & frequency): This part gives the information of the AC utility power, including input voltage and input frequency (autosensing).

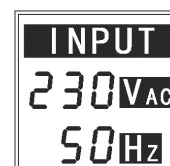








Fig. 2. The figure indicates that the input voltage is 230V and the input frequency is 50Hz.


#### 6. Auto Voltage Regulation: The LCD symbol → AVR → indicates that the UPS is in AVR (Auto Voltage Regulation) mode.

#### 7. Line Mode: The LCD symbol → LINE MODE → illuminates when UPS is on and the AC source is available.

#### 8. Battery.

- ☐ The LCD symbol → [Battery Icon] → indicates that the battery is in charging mode.

- ❑ The LCD symbol  indicates that the battery is working (the AC source is not available), and it will flicker every second when battery is low.
- ❑ The battery symbol also could show battery level: There are four segments to indicate the amount of battery capacity remaining. The higher the battery capacity, the more indicators that will be illuminated. Each indicator designates a 25% capacity level. Please see the following capacity level respectively. This is:
  - 100% to 76% , all of the four indicators illuminate.
  - 75% to 51% , three indicators illuminate.
  - 50% to 26% , two indicators illuminate.
  - 25% to 11% , only one indicator illuminates.
  - 10% to 0% , none of the indicator illuminates.

When the battery is empty, the symbol  will flicker every second.

9. **Output parameters (voltage & frequency):** This part gives the information of the output, including output voltage and output frequency.

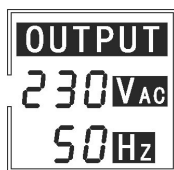


Fig. 3. The figure indicates that the output voltage is 230V and the output frequency is 50Hz.

10. **Capacity of Load %:** The LCD gives the load information by displaying the load percentage.

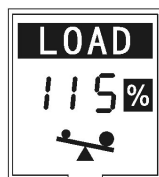


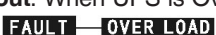


Fig. 4. The figure indicates the capacity of Load.

Normally, the symbol  will not illuminate, but when the load percentage is more than 110% (overload), it will flicker every second. If over load is time out, it will illuminate constantly.

11. **Site Fault:** The Site Fault indicator **SITE FAULT** will light when UPS is plugged into an improperly utility. This function is only available for 120Vac models
12. **Fault code:** When UPS fails, the corresponding LCD symbol will illuminate to show the type of failure.
- ❑ **Battery bad:** When the battery of the UPS is bad, the symbol **FAULT**  will be displayed constantly.
  - ❑ **Over load time out:** When UPS is Over load time out, the symbol **FAULT**  will be displayed constantly. At the same time, the symbol will

be displayed constantly, and the output voltage is 0Vac 0Hz.

- ❑ **Battery missing:** If the battery connection is not good, the LCD will display "FAULT CODE 1".
- ❑ **Fan fail:** If the fan is locked, The symbol "FAULT CODE 2" will flicker every second; if the time is out. The symbol will be displayed constantly.
- ❑ **Over temperature:** If the temperature of the UPS is too high, The LCD will display "FAULT CODE 3" constantly.
- ❑ **Output invalid:** If output voltage is out of range, the LCD will display "FAULT CODE 4" constantly.
- ❑ **Battery overcharged:** The LCD will display "FAULT CODE 5" constantly.
- ❑ **Output short circuit:** The LCD will display "FAULT CODE 6" constantly.
- ❑ **Other fault type:** The LCD will display "FAULT CODE 8" constantly.

### 13. Input type (Operation mode).

#### INPUT TYPE :

- NORMAL
- GENERATOR
- WIDE RANGE

Fig. 5. Operation mode indication

- ❑ **Normal:** The UPS accepts a input voltage range of  $\pm 20\%$ .
- ❑ **Generator:** The low frequency transfer point changes at 40Hz and there is not limit for the high frequency transfer point.
- ❑ **Extended margin:** The UPS accepts a input voltage margin of  $-30\%$  to  $+20\%$ .

14. **Output voltage margin:** The UPS output voltage selection: 110Vac / 120Vac / 127Vac o 220Vac / 230Vac / 240Vac.

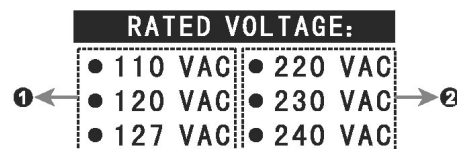


Fig. 6. Output voltage margin indication

- ① 110Vac/120Vac/127Vac are LV mode (low voltage).
- ② 220Vac/230Vac/240Vac are HV mode (high voltage).

**Example:** To a HV UPS, after selection the 230Vac mode (default selection) by the switches "CNFG" and "ENTER", the output voltage will be approximately 230V, and the LCD display will be how the next figure shows:

#### RATED VOLTAGE:

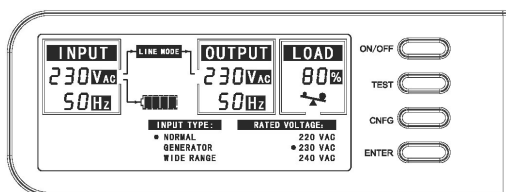
- 220 VAC
- 230 VAC
- 240 VAC

Fig. 7. Indication after the selection of HV 230 Vac mode.

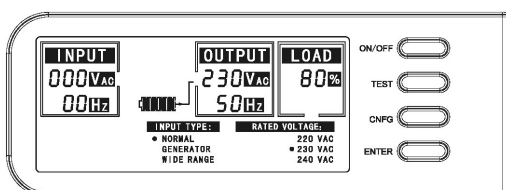


Examples to the LCD display:

a. If the mains supply exist:



b. If the mains supply do not exist:



## 4.2. Introducing the LCD display

ICON	STATUS	DESCRIPTION
	Steady	The UPS is operating on mains power
	Steady	UPS is in AVR mode (AVR - Auto Voltage Regulation)
	Steady	Battery is in charging mode
	Steady	Battery is in discharging mode
		Battery capacity: 76% ~ 100%
		Battery capacity: 51% ~ 75%
		Battery capacity: 26% ~ 50%
		Battery capacity: 11% ~ 25%
		Battery capacity: 0% ~ 10%
	Flashing	UPS is overload
	Steady	UPS is overload and the time is out
	Steady	UPS is overload and the time is out
	Steady	UPS is plugged into an improperly polarity (only for LV models)
	Steady	Battery bad
	Code 1	Battery disconnect
	Code 2	Fan fail
	Code 3	Over temperature
	Code 4	Output voltage is out of range
	Code 5	Battery overcharged
	Code 6	Output short circuit
	Code 8	Other fault type

Table 1. Display LCD symbols

## 4.3. Audible alarm introduction

Condition	Alarm
Backup mode (Power Failure)	Sounding every four seconds
Low Battery	Sounding every second
UPS fault	Continuously Sounding
Overload	Sounding every second
Battery Replacement	Sounding every second

Table 2. Alarm warning frequency

## 4.4. Back panel

### 4.4.1. 750 / 1000 VA models

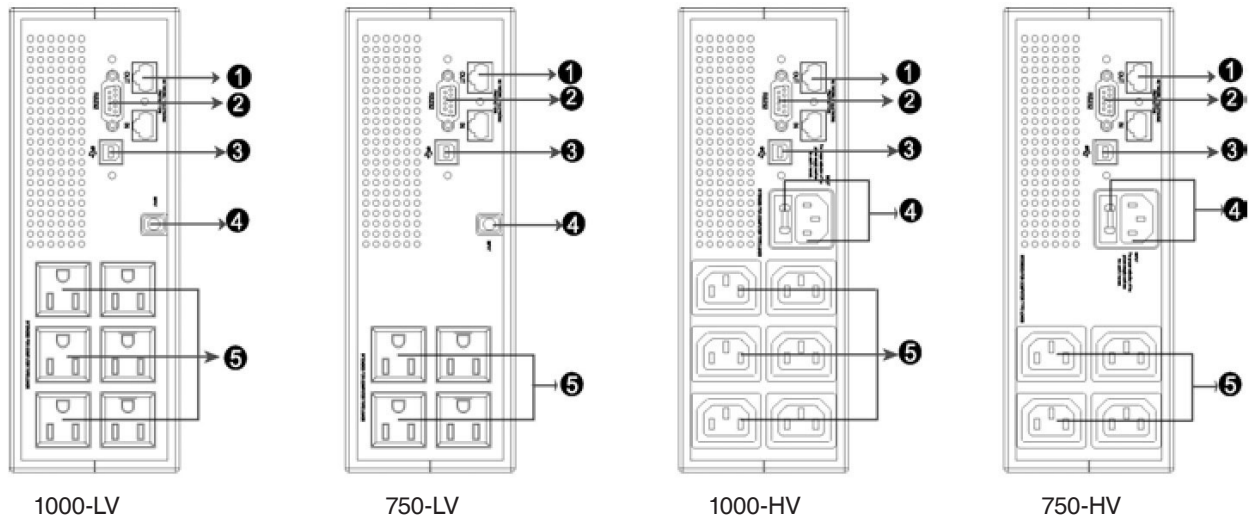


Fig. 8. View of the 750 and 1000 VA models

No.	Function	
	LV model(110/120/127Vac)	HV model(220/230/240Vac)
1	Modem / Network Surge Protection	
2	RS232 / Dry-Contact Communication Port	
3	USB Communication Port	
4	AC Input Power cord	AC Input & Protection
5	AC Output NEMA	AC Output IEC

Table 3. Rear panel description for LV and HV models table

### 4.4.2. 1500 / 2000 VA models

#### 4.4.2.1. UPS module

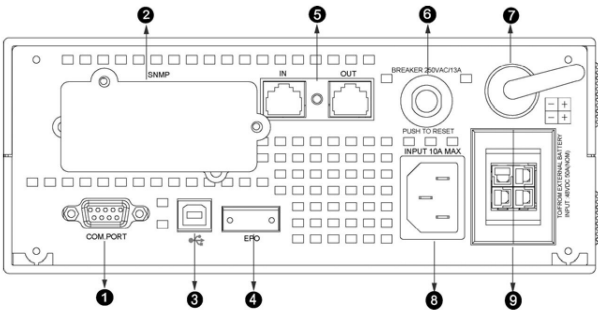


Fig. 9. Rear panel for HV model

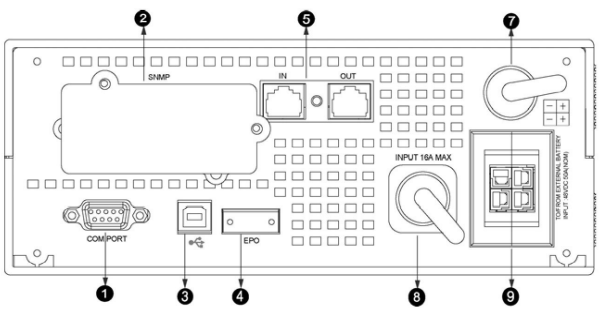


Fig. 10. Rear panel for LV model

No.	Function	
	LV model (110/120/127Vac)	HV model (220/230/240Vac)
1	RS232 / Dry-Contact Communication Port	
2	SNMP Port or AS400	
3	USB Port	
4	EPO	
5	Modem / Network Surge Protection	
6	N/A	Input Breaker
7	AC Output	
8	AC Input	
9	External Battery Connector	

Table 4. Rear panel description for LV and HV models table

#### 4.4.2.2. Battery module

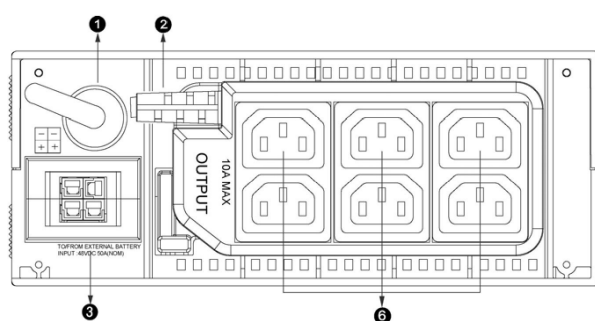


Fig. 11. Rear panel for HV model

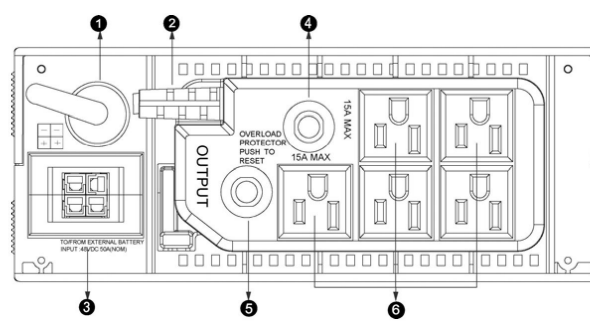


Fig. 12. Rear panel for LV model

#### 4.4.3. 3000 VA model

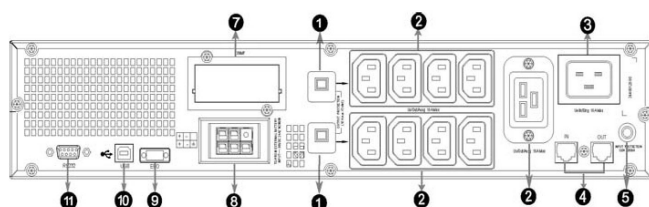


Fig. 13. Rear panel for HV model

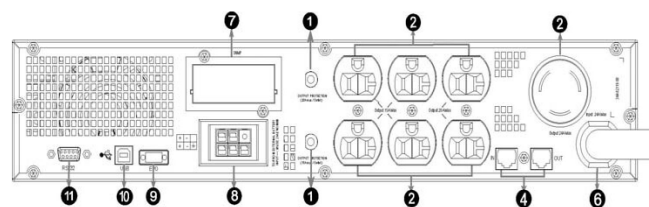


Fig. 14. Rear panel for LV model

No.	Function	
	LV model (110/120/127Vac)	HV model (220/230/240Vac)
1	Output thermic protection	
2	AC Output	
3	AC Input	
4	Modem / Network Surge Protection	
5	Input Breaker	N/A
6	Input Power Cord	N/A
7	SNMP Slot or AS400	
8	External Battery Connector	
9	EPO	
10	USB Port	
11	RS232 / Dry-Contact Communication Port	

Table 5. Rear panel description for LV and HV models table

## 5. Installation

### 5.1. Inspecting the Equipment

Inspect the UPS upon receipt. If the UPS has been damaged during shipment, keep the box and packing material for the carrier. Notify the carrier and dealer immediately.

### 5.2. Placement

This UPS should be installed indoors with adequate airflow and free of contamination. Locate it in a clean and indoor environment, free from moisture, flammable liquids, and direct sunlight. Maintain a minimum clearance of 4 inches (100mm); an ambient temperature range must be 0°C to 40°C (32°F to 104°F), and operating humidity range must be 20% to 80% relative humidity (non-condensing)..



The long term uses at ambient temperature in higher than 25°C which should reduce battery life. In addition, place the UPS unit away from the monitor at least 20cm. to avoid interference.

### 5.3. Charging

This UPS is shipped from the factory with its internal battery fully charged; however, some charge may be lost during shipping. The battery should be recharged prior to use. Plug the UPS into an appropriate power supply and allow the UPS to charge at least 4 hours.

#### 5.3.1. Load connection

Connect one load-related device to each of the power receptacles supplied at the rear of the UPS.

### 5.4. Modem / Phonenumber Connection

Plug incoming telephone line into the “In” socket at the back of the UPS. Use on telephone line cable and plug one end of the telephone line cable to the “Out” socket at the back of the UPS. Plug the other end to the modem input socket.

### 5.5. DC Start function

DC Start Function enables UPS to be started up when AC utility power is not available and battery is full charged. Just simply press the On/Off switch to turn on the UPS.

### 5.6. Turn On/Off

To turn on/off the UPS, you should press the on/off switch three seconds at least.

### 5.7. UPS Setup

All models series are designed for tower and rack purpose. They can be installed as a 19 inch equipment rack, and 3000 VA can be placed in a tower (with optional stand) as well. Please follow the instruction for Tower Setup or Rack-Mount Setup.

#### 5.7.1. Tower Setup

This series can be placed in horizontally and vertically. 3000 VA model is designed in a rack itself. As a tower, it is provided with the optional UPS stand to stabilize the UPS when the UPS is positioned in vertically. The UPS stand must be attached to the bottom of the tower.

##### 5.7.1.1. 750 / 1000 VA models

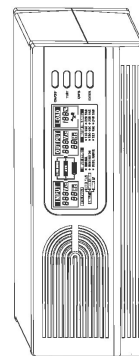
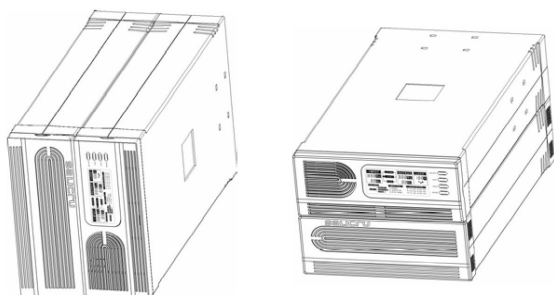


Fig. 15. Front view 1500 / 2000 VA models

### 5.7.1.2. 1500 / 2000 VA models

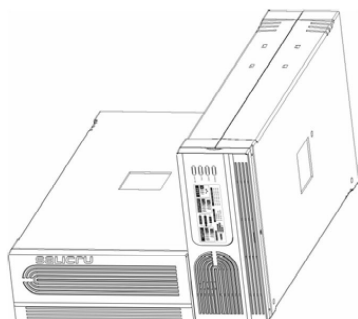
UPS and Battery modules integrate into three types of tower forms:



Tower form 1

Tower form 2

Fig. 16. Integrated format views 1 and 2 UPS - Batteries



Tower form 3

Fig. 17. Integrated format view 3 UPS - Batteries

### 5.7.1.3. 3000 VA model

Follow the next steps for setup:

1. Slide down the UPS vertically and put two UPS stands at the end of the tower.

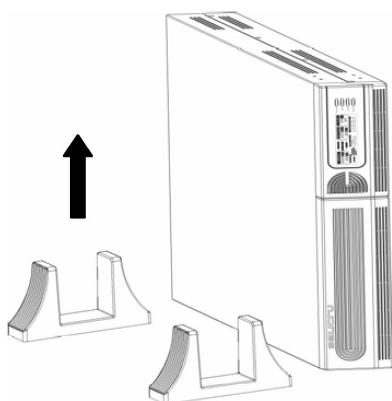


Fig. 18. View of the setup first step

2. Place the UPS into two stands carefully.

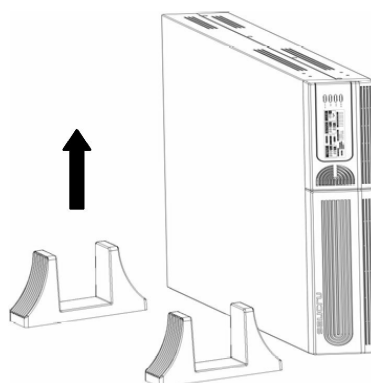


Fig. 19. UPS placed in his stands

## 5.7.2. Rack-Mount Setup

750/1000/1500/2000 VA (optional) and 3000 VA can be installed in 19" racks. And the UPS and external battery enclosure need 2U of valuable rack space. Use the following procedure to install UPS in a rack.

### 5.7.2.1. 750 / 1000 VA models (optional)

1. Align the mounting ears with screw holes on the side of the UPS.

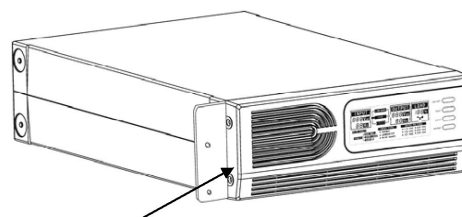


Fig. 20. Placement lateral stands

2. Install rack-mounting rails with the screws provided tightened up into rack enclosure.

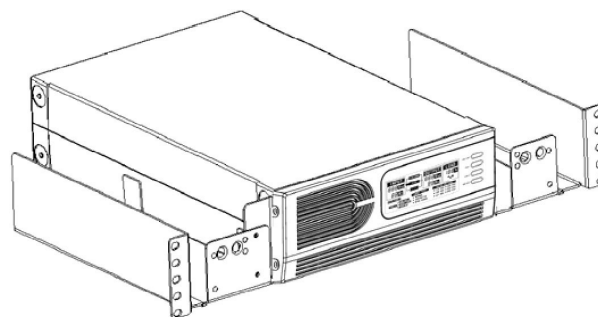


Fig. 21. Install rack-mounting rails

3. Insert UPS into the slide assemblies and lock it in the rack enclosure.

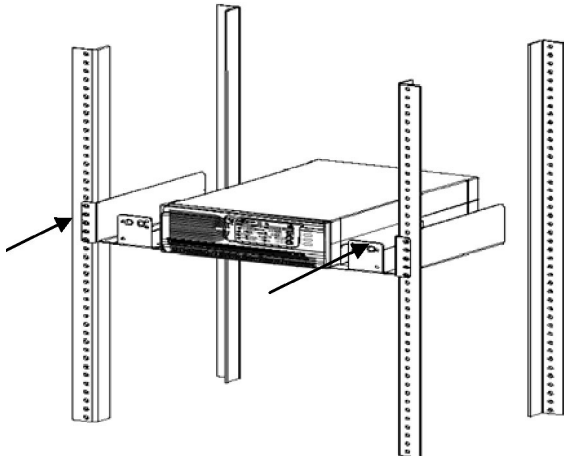


Fig. 22. Attaching the UPS in the rack cabinet

4. Add up the front panels for both sides. The load can be connected.

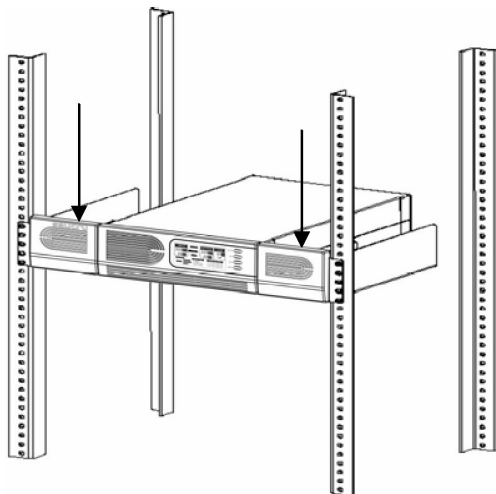


Fig. 23. End of the installation

#### 5.7.2.2. 1500 / 2000 VA models (optional)

1. UPS and Battery integrate into a rack form:
  - a. Place the UPS on a flat and in a clean place that the front side of the UPS is facing to you.
  - b. 2. Disconnect the cable from the UPS and Battery modules. .

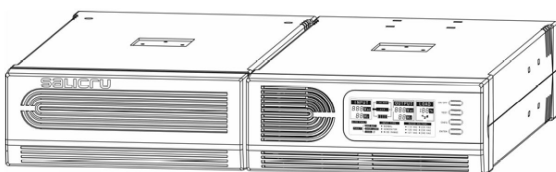


Fig. 24. UPS and Battery are disconnected

- c. Loosen the screws and remove the UPS and Battery modules cover from the unit.

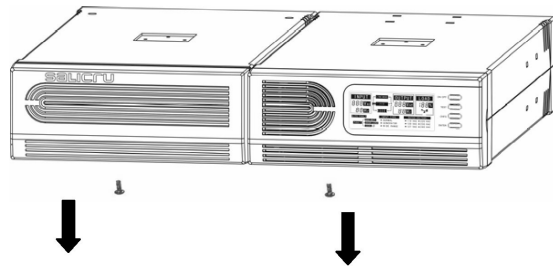


Fig. 25. Removal of screws and covers

- d. Pull two covers toward the direction shown as below.

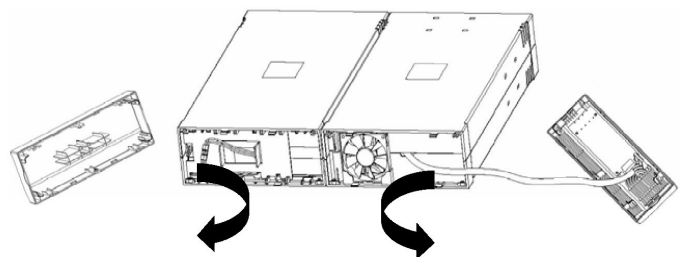


Fig. 26. Removing covers

- e. Align the mounting bracket with the screw holes on the each side of UPS and Battery modules and secure with the supplied screws.

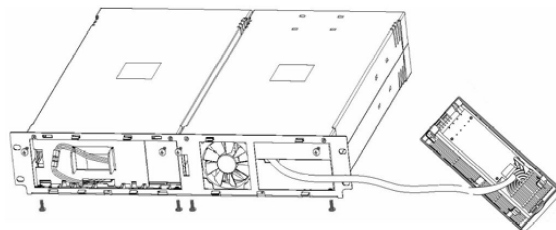


Fig. 27. Align the mounting bracket

- f. Reinstall the UPS and Battery modules cover.

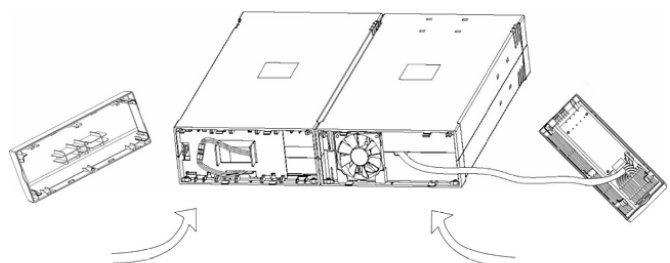


Fig. 28. Covers reinstallation



- g. Tighten all screws up to front panels and setup rack-mount for front side is completed.

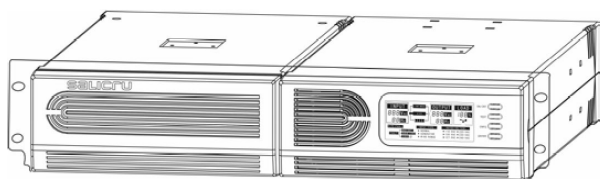


Fig. 29. End of the front side rack-mount

- h. Align two small mounting brackets at the rear of UPS and Battery modules and secure with the supplied screws. Install Output receptacles at the rear panel of the UPS.

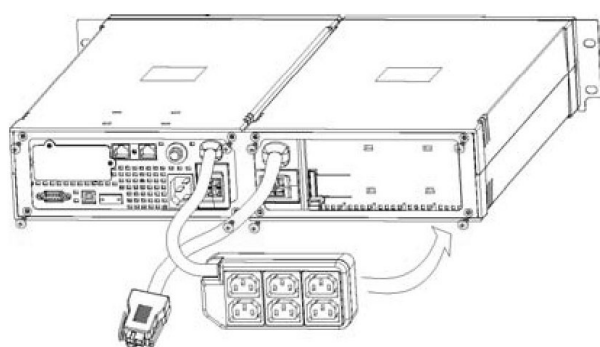


Fig. 30. Beginning rear mounting

- i. Setup rack-mount is completed and to connect the UPS.

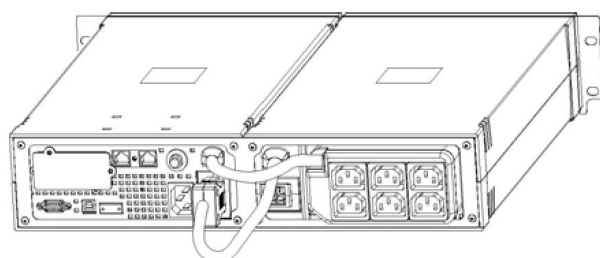


Fig. 31. End of the rack mounting

2. Battery and Battery modules integrate a rack form:

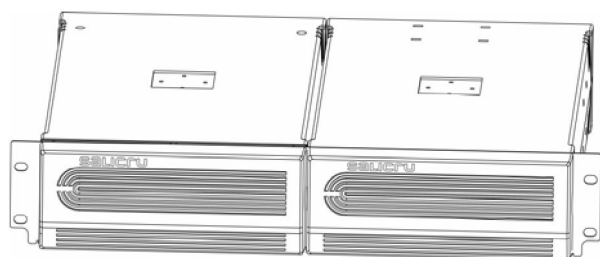


Fig. 32. Two battery modules in rack form



The rackmount kit for connecting the UPS-to-Battery & Battery-to-Battery modules is different. Please contact your dealer for further details.

### 5.7.2.3. 3000 VA model (optional)

Install the 3000 VA series into 19" rack as shown below:

1. Turn on the UPS and connect the load.
2. After installing the UPS into rack, the load may be connected. Make sure the load equipment is turned off, then plug all loads into the output receptacle properly protected by a circuit breaker or fuse in accordance with national and local electrical codes.



Fig. 33. 3000 VA model in 19" rack

## 5.8. Emergency Power Off (E.P.O.) set up

1500/2000 VA and 3000 VA include E.P.O. port that allows power to be shut down the protected equipment immediately and does not follow the shutdown procedure from any power management software.

Follow the procedure to install the E.P.O. switch as below:

1. Check the UPS is turned off.
2. Remove the E.P.O. connector from the E.P.O. port on the rear panel of UPS.
3. Connect isolated, normally-open, dry contacts (rated to handle 60 Vdc maximum, 30 Vac RMS maximum, and 20 mA maximum) across the EPO device to Pin 1 and Pin 2.
4. Reconnect the E.P.O. connector to the E.P.O. port.
5. Verify that the externally-connected E.P.O. switch is not activated to enable power to the UPS output receptacles.
6. Plug in the UPS, then pressing power switch "ON/OFF" button to turn on the UPS.
7. Activate the external E.P.O. switch to test the E.P.O. function.
8. De-activate the external E.P.O. switch and restart the UPS.

## 5.9. Additional battery installation setup

1500/2000 VA and 3000 VA include external battery port that allow to provide additional battery runtime. 1500/2000 VA model has no internal battery, and 3000 VA has designed an internal battery inside the UPS.



Connecting battery cable to external battery port may occur sparkle if adding up additional battery.

Follow the procedure to install additional battery as below:

### 5.9.1. 1500 / 2000 VA models

There are two external battery ports for each side of UPS itself and battery pack.

1. Connect the battery cable to the external battery port of the rear of UPS.
2. Then connect the supplied battery cable from extended battery module to the external battery port of the rear of previous UPS.
3. If continuing to add up extended battery pack, repeat above steps.

#### 5.9.1.1. Additional battery connection in rack form

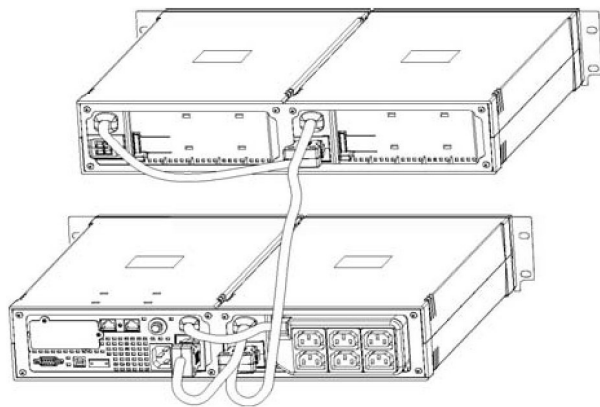


Fig. 34. Rear view of the additional battery connection

### 5.9.1.2. Additional battery connection in tower form

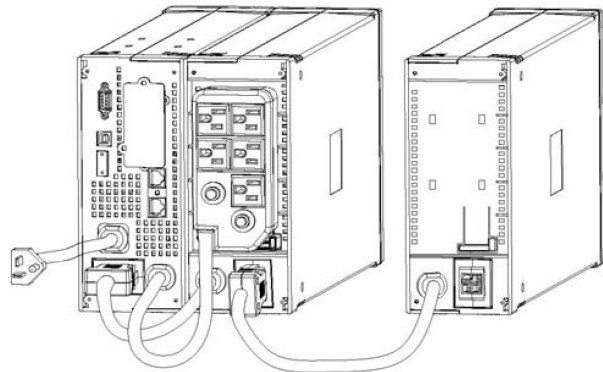


Fig. 35. Rear view of the additional battery connection

### 5.9.2. 3000 VA model

There is one external battery port for the UPS itself.

1. Connect the supplied battery module cable from extended battery module to the external battery port of the rear of UPS.
2. If continuing to add up extended battery module, repeat above steps.

## 5.10. Communication Ports

### 5.10.1. RS232 + Optocouplers

Pin#	Description	I/O	Function explanation
1	Low Battery	Output	Low Battery Output (*normally open, pull to Pin#5 when battery low alarm in battery mode)
2	TxD	Output	TxD
3	RxD	Input	RxD
4	DTR	Input	(tied to Pin#6)
5	Common	--	Common (tied to chassis)
6	DSR	Output	(tied to Pin#4)
7	RTS	Input	No connection
8	AC Fail	Output	AC Fail Output (**normally open, pull to Pin#5 when battery low alarm in battery mode)

Table 6. DB9 Female (RS232 + optocouplers)

### 5.10.2. USB port: HID protocol

The USB and RS232 are unable to operate at the same time. Either only USB or DB9 can connect with RS-232 at one time, usually connecting with USB function is priority.



### 5.10.3. AS400 interface (Optional). Not available for models lower than 1500 VA

This UPS has the AS400 communications as an option, through a female DB9 connector, which allows to communicate with other equipments like the standard RS232+optocouplers simultaneously, but, the AS400 provides dry contacts from relays instead of optocouplers and it has a higher quantity of alarms.

Its installation is very easy and not complicated:

1. Loosen and remove the screws from cover 2, for models up to 2000 VA or 7 for higher models. This cover is located in the rear side of the equipment.
2. Remove the cover and keep it in safe place.
3. Insert the AS400 card into the guides that are visible and enter it until is set with the connector of the bottom.
4. Put back the screws that fix the cover integrated with the AS400 card.

The following table and diagram, shows the pin-out of female DB9 connector and its function.

Do not apply values higher than 24 V DC and 1 A to the pins of the AS400 connector..

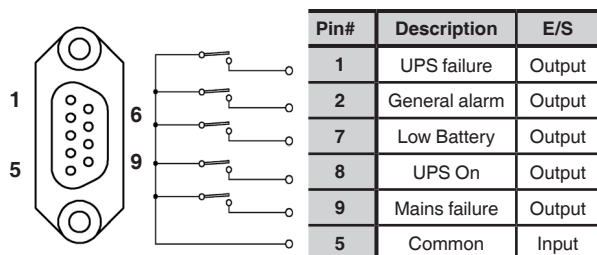


Table 7. DB9 Connector Pin-out and his function

## 5.11. Software installation

WinPower is a brand new UPS monitoring software, which provides user-friendly interface to monitor and control your UPS. This unique software provides safely auto shutdown for multi-computer systems while power failure. With this software, users can monitor and control any UPS on the same LAN no matter how far from the UPSs.

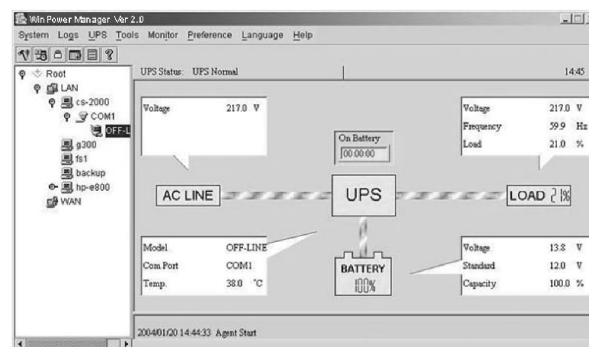


Fig. 36. WinPower Main menu

### Installation procedure:

1. Insert CD. The installation assistant runs up automatically. Follow the steps.
2. When the system requires, tape the serial number: 511C1-01220-0100-478DF2A.

When your computer restarts, the WinPower software will appear as a green plug icon located in the system tray, near the clock.

## 6. Maintenance, warranty and service

### 6.1. Troubleshooting guide

#### 6.1.1. Audible Alarm Trouble Shooting

Problem	Cause	Solution
Sounding every 4 seconds	The UPS is on battery	Check the input voltage
Sounding every second	The battery is running low	Save your work and turn off your equipment
	Output overload	Check load level indicator and remove some load
Continuously sounding	The UPS fails	Please contact your local dealer
	Battery may need to charge or service	Replace the battery


Table 8. Audible Alarm Trouble Shooting

#### 6.1.2. General Trouble Shooting

Problem	Cause	Solution
The UPS is not on when power switch is pressed	The power cord is not connected correctly	Check the power cord connection
	The wall outlet may be faulty	Please contact your local qualified electrician
	The UPS output may short-circuit or overload	1. Disconnect all loads and ensure nothing in output receptacles. 2. Ensure loads are not defective or shorted internally.
UPS could not provide power to the load	Power presents on one output receptacle	Check the output fuse
	No output from any output receptacle	1. Check the cable 2. Ensure the load does not exceed the maximum rating of UPS.
Battery has reduced backup time	Battery is no charged	Re-charge the battery at least 24 hours
	Battery may not able to hold a full charge due to age	1. Recharge the battery at least 8 hours. 2. Replace battery.
The UPS fault LCD symbol lights on	The UPS fails	1. Save your work and turn off equipment. 2. Contact your local dealer.
Connected equipment's lose power while connected to the UPS	UPS overloaded	Check the load status
	The UPS may be failed	Contact local dealer.
The UPS is beeping continuously	The UPS is in fault condition	Check the audible alarms condition table
Buttons does not work	The UPS is in green mode	Wait for a while and try again
	Button is broken	Contact local dealer.

Table 9. General Trouble Shooting

### 6.2. Battery replacement

When the Bad Battery icon  lights and there is a continuous sounding, the battery may need to be replaced. Please check the battery connection or contact your local dealer to order new battery.



A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed before replacing the batteries:

1. Turn off the UPS and disconnect the utility power cord from the wall outlet.
2. Remove rings, watches, and other metal objects.
3. If the battery replacement kit is damaged in anyway or shows signs of leakage, contact your dealer immediately.
4. Properly recycle or dispose of used battery. Do not dispose of batteries in a fire. The batteries may explode.



If you are not qualified service personnel to replace the battery, do not attempt to open the battery door. Please call local dealer or distributor immediately.

Recycle the used battery:

- Never dispose the batteries in a fire. It may explode.
- Do not open or mutilate the batteries. Released electrolyte is harmful to the skins and eyes. It may be toxic. A battery can present a risk of electrical shock and high short circuit current.

To recycle properly the used battery, please do not discard the UPS, battery pack, and batteries into the trashbin. Please follow your local laws and regulations; you may contact your local recycling waste centre for further information to dispose properly of the used UPS, battery pack, and batteries.

Follow the steps and Charts below to replace batteries:

## 6.2.1. 750 / 1000 VA models

1. Unscrew and remove the front panel on both ends.

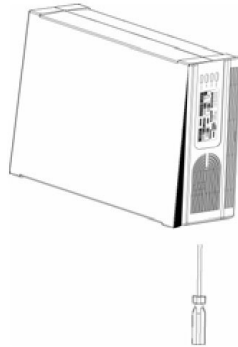


Fig. 37. Front panel removal

2. Disconnect the battery cable from the UPS and remove the battery retaining battery bracket.

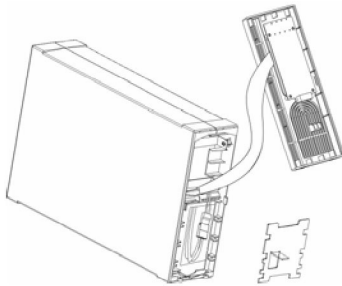


Fig. 38. Battery bracket removal

3. Grasp the battery and pull it out from the front panel.

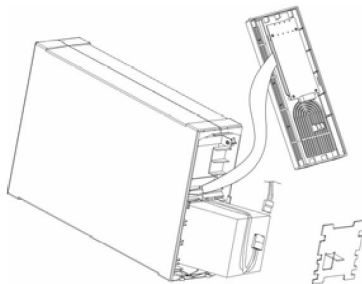


Fig. 39. Battery removal

4. Slide the new battery into UPS.
5. Reconnect the battery cable and screw up the battery retaining battery bracket.
6. Close and reinstall the front panel.

## 6.2.2. 1500 / 2000 VA models

1. Remove the battery case front panel by pulling on both ends.

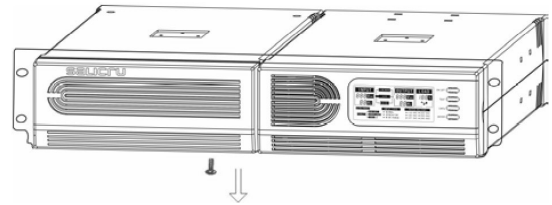


Fig. 40. Front panel removal

2. Disconnect the battery cable from the Battery module.

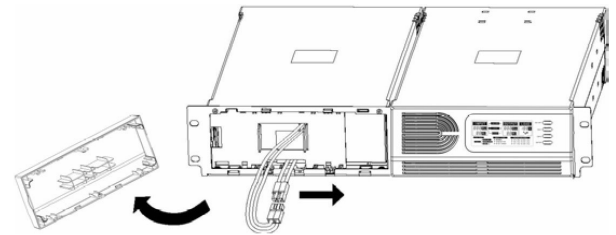


Fig. 41. Battery cable disconnect

3. Unscrew and remove the battery retaining battery bracket.

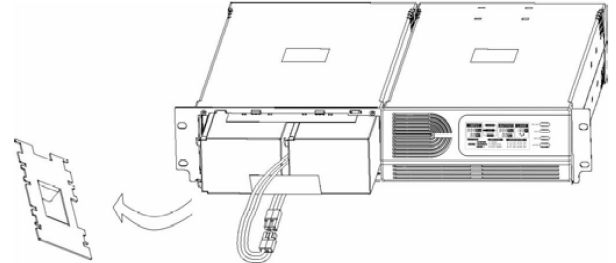


Fig. 42. Battery bracket removal

4. Pull the battery out onto a flat area.

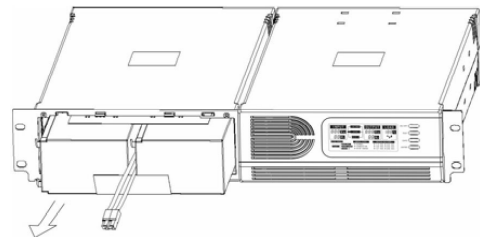


Fig. 43. Battery removal

5. Slide the new battery into Battery module.
6. Reconnect the battery cable and screw up the battery retaining bracket.
7. Close and reinstall the front panel back to Battery module.

### 6.2.3. 3000 VA model

1. Remove the battery case front panel by pulling on both ends.

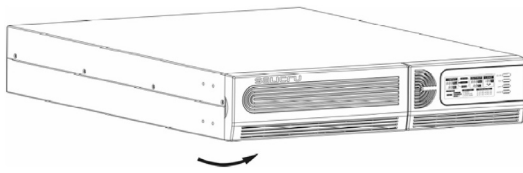


Fig. 44. Front panel removal

2. Disconnect the battery cable from UPS.
3. Unscrew the battery bracket from the Battery module.



Fig. 45. Battery cable disconnect and battery bracket removal

4. Remove the battery bracket from EBM by pulling on both ends.

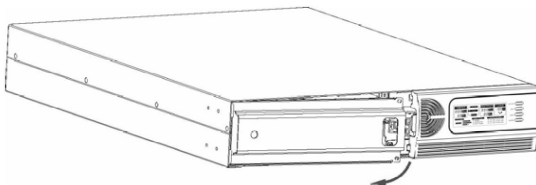


Fig. 46. EBM battery bracket removal

5. Pull the battery out (from right side and the left side) onto flat area.

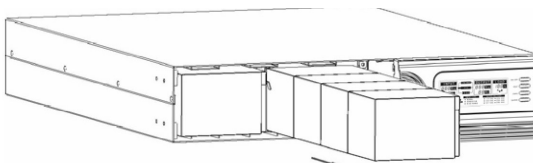


Fig. 47. Battery right side removal

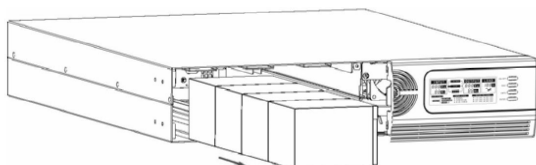


Fig. 48. Battery left side removal

6. Slide the new batteries into Battery module.
7. Reconnect the battery cable and screw up the battery bracket.
8. Close and reinstall the front panel back to Battery module.

## 6.3. Warranty conditions

The limited warranty only applies to those products that you acquire for commercial or industrial use in the normal development of your business.

### 6.3.1. Covered product

SPS ADVANCE UPS series.

### 6.3.2. Warranty terms

Our company guarantees this product against any parts and/or labour defect for 12 months period from its commissioning by our personal staff or other specifically authorised, or 18 months from its factory delivery, whichever expires first. In case of failure of the product inside the warranty period, repairs to our facilities at no cost, the faulty part or parts. The transport expenses and packaging will be borne to the user.

Guarantee for period time higher than 10 years, the availability of parts and spare parts, as hardware as software, as well as a complete assistance regarding the reparations, components replacement and software updating.

### 6.3.3. Out of the scope of supply

Our company is not forced by the warranty if it appreciates that the defect in the product doesn't exist or it was caused by a wrong use, negligence, installation and/or inadequate testing, tentative of repairing or not authorized modification, or any other cause beyond the foreseen use, or by accident, fire, lightnings or other dangers. Neither it will cover, in any case, compensations for damages or injuries.

## 6.4. Available maintenance and service contracts

When the warranty is expired, has several maintenance modalities:

- **Preventive.** It guarantees a higher safety to preserve the correct operating of the equipments with a yearly preventive visit, in which the specialised technicians make several tests and sets in the systems:
  - ☐ Check and write down the input and output voltages and currents per phase.
  - ☐ Check the logged alarms.
  - ☐ Check the readings of the LCD panel.
  - ☐ Other measurements.
  - ☐ Check the fan status.
  - ☐ Check the load level.
  - ☐ Check the selected language.
  - ☐ Check the correct location of the equipment.

General cleaning of the equipment.

This way, it is guaranteed the perfect operating and the possible coming faults are avoided.

These supervisions are usually done without shut-down the equipment. In those cases that a shut-down were needed, a date and time would agree with the customer to do the task.

This maintenance modality covers, inside the working timetable, all the journey expenses and manpower.

- **Corrective.** When a fault occurs in the equipment operating, and previous notice to our Service and Technical Support (S.T.S.), in which a specialized technician will establish the failure scope and he will determine a first diagnostic, the corrective action starts.

The needed visits for its correct resolution are unlimited and they are included inside the maintenance modalities. This means that our technicians reviewed, in case of failure, will check the equipments as many time as it were needed.

Besides, inside these two modalities, is possible to fix the action timetable and response times in order to be adapted to the customer's needs:

- ☐ **LV8HLS.** Customer's attention from Monday to Friday from 9 h. to 18 h. Response time inside the same day or, as maximum, in the next 24 hours of the fault notification.
- ☐ **LS14HLS.** Customer's attention from Monday to Saturday from 6 h. to 20 h. Response time is inside the same day or, as maximum, at first time of the next working day.
- ☐ **LD24HLS.** Customer's attention from Monday to Sunday 24 h., 365 days per year. Response time in less than two or three hours after the fault notification.
- Additional arrangement: 1-m-cb.
  - ☐ **Index 1.** It means the number or Preventive visits per year. It includes displacement and manpower expenses inside the established timetable for each maintenance modality, as well as all the needed Correctives visits. Excluding all the parts and batteries in case of reparation.
  - ☐ **Index m.** It means to include all the parts.
  - ☐ **Index cb.** It means to include the batteries.

## 6.5. Technical service network

The covering, as national as international, of Service and Technical Support (S.T.S.) points, are made up by:

### In Spain:

Andorra, Barcelona, Madrid, Bilbao, Gijon, A Coruña, Las Palmas de G.Canaria, Malaga, Murcia, Palma de Mallorca, San Sebastian, Santa Cruz de Tenerife, Seville, Taco (La Laguna - Tenerife), Valencia and Zaragoza.

### At international level:

France, Brazil, Hungary, Portugal, Singapore, U.K., China, Mexico, Uruguay, Chile, Venezuela, Colombia, Argentina, Poland, Philippines, Malaysia, Pakistan, Morocco, Thailand, United Arab Emirates, Egypt, Australia and New Zealand.

## 7. Annexes

### 7.1. Specification

MODEL			750 / 1000 VA	1500 / 2000 VA	3000 VA
CAPACITY	Watt		500 / 700 W	1050 / 1340 W	2100 W
INPUT	Voltage		110 / 120 / 127 Vac or 220 / 230 / 240 Vac		
	Voltage range	Acceptable Voltage Range		0-160 Vac or 0-300 Vac	
		Line Low transfer (Wide mode)		77/84/89 Vac ±4% or 154/161/168 Vac ±4%	
		Line High transfer		132/144/152 Vac ±2% or 264/276/288 Vac ±2%	
		AVR mode	Boost	If the input voltage drops further 10%, the Voutput increases 12%	
		Buck	If the input voltage rise further 6%, the Voutput decreases 11%		
	Frequency range		50/60 Hz ±5 Hz (autosensing) for Normal Mode; > 40 Hz for Generator Mode		
Surge rating (LV/HV)		320/230 Joules	430/250 Joules	500/640 Joules	
OUTPUT	Voltage		110 / 120 / 127 Vac or 220 / 230 / 240 Vac		
	Voltage regulation (Batt. mode)		± 5% RMS for entire battery voltage range		
	Frequency		50 Hz or 60 Hz		
	Frequency regulation (Batt. mode)		± 1 Hz		
	Waveform		Pure Sinewave		
OVERLOAD RATING	Line Mode		110% - 0%, +8% shutdown after 3 minutes 150% - 0%, +10% shutdown after 10 cycles		
	Battery Mode		110% ± 6%, shutdown afters 30 seconds 120% ± 6% shutdown after 5 cycles		
TRANSFER TIME	Typical		2-4 ms. typical, 6 ms. max. 13 ms. max. in Generator Mode		
BATTERY	Battery Type		12 V / 7 AH ; 12 V / 9 AH		12 V / 5 AH
	Battery Number		2 pcs	4 pcs	8 pcs
	Back up Time (at full load)		5 minutes min.		
	Recharge Time		3 hours to 90% after discharged		
INDICATORS			Display LCD		
AUDIBLE ALARMS	Back up mode		Sounding every 4 seconds		
	Low Battery		Sounding every second		
	UPS Fault		Continuously sounding		
	Overload		Sounding every second		
	Battery replacement		Sounding every second		
PHYSICAL	UPS Case	Dimension (W x H x D) mm	235*86,2*383	217*86,5*413,5	438*86,2*582
		Net Weight (Kg.)	10,5	21,5	31,5
	Battery Case	Dimension (W x H x D) mm	N/A	217*86,5*413,5	N/A
		Net Weight (Kg.)	N/A	12	N/A
ENVIRONMENT	Operating environment		0-40°C, 0-90% relative humidity (non-condensing)		
	Noise Level		Less than 45 dB		
INTERFACE	RS-232		Support Windows family, Linux and Mac		
	Optocouplers		Yes		
	USB		Yes		
	SNMP		N/A	Optional	
	E.P.O.		N/A	Yes	

Tabla 10. Specifications



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SALICRU.COM

## BRANCHES AND SERVICES and TECHNICAL SUPPORT (S.T.S.....)

MADRID	MURCIA
BARCELONA	PALMA DE MALLORCA
BILBAO	PAMPLONA
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LA CORUÑA	SEVILLA
LAS PALMAS DE G.	VALENCIA
CANARIA	VALLADOLID
MÁLAGA	ZARAGOZA

## SUBSIDIARIES

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PORTUGAL	SINGAPORE
HUNGARY	MEXICO
UNITED KINGDOM	

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BELGIUM	URUGUAY
DENMARK	VENEZUELA
HOLLAND	SAUDI ARABIA
IRELAND	ALGERIA
NORWAY	EGYPT
POLAND	JORDAN
CZECH REPUBLIC	KUWAIT
RUSSIA	MOROCCO
SWEDEN	TUNISIA
SWITZERLAND	KAZAKHSTAN
UKRAINE	PAKISTAN
ARGENTINA	UEA
BRAZIL	PHILIPPINES
CHILE	INDONESIA
COLOMBIA	MALAYSIA
CUBA	THAILAND
ECUADOR	VIETNAM

## Product Range

Uninterruptible Power Supply UPS  
Lighting Flow Dimmer-Stabilizers  
Power Supplies  
Static Inverters  
Photovoltaic Inverters  
Microturbines  
Voltage Stabilisers



Nota: Salicru can give other electronics solutions according to the application specifications or technical specifications.